CLAIMS:

1.   A deflection unit (10) for a cathode ray tube (14), the deflection unit (10) comprising:

line deflection coils (17),

frame deflection coils (18) surrounding the line deflection coils (17), and

a yoke ring (22) having a magnetic permeability μ_r and surrounding the frame deflection coils (18), wherein

the deflection unit (10) comprises a magnetic material which is present between the line deflection coils (17) and the frame deflection coils (18) and has a magnetic permeability μ_1 which satisfies the relation $\mu_1 < \mu_r$.

2.   A deflection unit (10) as claimed in claim 1, wherein void spaces (101) are present between the line deflection coils (17) and the frame deflection coils (18), and the void spaces (101) are filled with the magnetic material.

3.   A deflection unit (10) as claimed in claim 2, wherein second void spaces (54,102) are present between the frame deflection coils (18) and the yoke ring (22), and third void spaces (52) are present between wire strands (50) of the frame deflection coils (18), and the second and/or third void spaces are filled with a magnetic material (56) having a magnetic permeability μ_2 which satisfies the relationship $\mu_2 \geq \mu_1$.

4.   A deflection unit (10) as claimed in claim 3, wherein the yoke ring comprises at least two parts, a first part (22a) being positioned closer to a neck portion (11) of the cathode ray tube than a second part (22b), and wherein only the void spaces surrounded by the first part of the yoke ring (22a) are filled with the magnetic material.

5.   A deflection unit (10) as claimed in claim 1, wherein the deflection unit (10) further comprises a support for carrying both the frame and the line coils, said support comprising the magnetic material.

6.   A deflection unit (751) as claimed in claim 4, wherein the first (760) and/or the second (768) part have four coils (722') for generating a magnetic quadrupole field.

7.   A deflection unit (751) as claimed in claim 6, wherein said coils (722') comprise electrically conductive wires which are toroidally wound in a winding direction and in accordance with a winding density distribution N (φ) given by N (φ)= N_0 cos (2φ); where φ is an angle enclosed by an X-direction and a line between an element of the coil and the center, which ranges between $0°$ and $360°$, N_0 is the winding density at φ equal to $0°$, and the sign of N (φ) denotes the winding direction.

8.   A deflection unit as claimed in claim 4, wherein the yoke ring further comprises a third part (22c) which is positioned closer to the neck portion (11) of the cathode ray tube than the first part (22a)

9.   A cathode ray tube assembly (10, 14) comprising a deflection unit (10) as claimed in claim 1.

10.   A display apparatus, comprising:
            a cathode ray tube assembly as claimed in claim 9,
            control electronics (E) coupled to receive a video signal (VS) to apply a display signal to the cathode ray tube (14) and deflection signals to the deflection unit (10) in dependence on the video signal (VS).